

## Cell Biology

LOCALIZATION OF THE HEAD AND TRUNK BOUNDARY IN THE EARLY EMBRYONIC CHICK, Sadie A. Norwick, David Mann, Diana K. Darnell\*, Department of Biology, Lake Forest College, Lake Forest, IL 60045, darnell@lakeforest.edu

In order to form an organ or embryo, undifferentiated and unorganized cells must differentiate and organize. Vertebrates, including the chick, differentiate through asymmetrical cues from surrounding tissues known as organizers. Previously, both head and trunk induction and patterning were thought to be regulated in chick by the organizer Hensen's node, located at the rostral end of the primitive streak. Hensen's node does induce and pattern head and trunk neuroectoderm at extended-streak stages (3d-4). However, at earlier embryonic stages (2-3b), the head is initially induced and patterned by anterior endoderm. Although the head inducer and node have been identified, the boundary separating their areas of influence has not been mapped. We hypothesize that this boundary falls between the midbrain and the rostral hindbrain (between the mesencephalon and rhombomere 3). At stages 2-3b, when the node was microsurgically excluded from rostral embryonic fragments, DMBX, a gene expressed throughout the mesencephalon of the head (midbrain), was induced in these fragments. This supports that the midbrain is rostral to the boundary. Tests to determine if Krox20, a gene expressed in rhombomeres (r) 3 and 5 of the hindbrain, is included or excluded are in process. If excluded, our hypothesis will be supported. If included, additional genes in the caudal hindbrain or rostral spinal cord will be tested.

S.A. Norwick and D. Mann supported by Lake Forest College Richter Scholarships and LFC Summer Research Grants to Diana Darnell.